

Technology Changing How Students Learn, Teachers Say

By [MATT RICHTER](#) NOV. 1, 2012

There is a widespread belief among teachers that students' constant use of digital technology is hampering their attention spans and ability to persevere in the face of challenging tasks, according to two surveys of teachers being released on Thursday.

The researchers note that their findings represent the subjective views of teachers and should not be seen as definitive proof that widespread use of computers, phones and video games affects students' capability to focus.

Even so, the researchers who performed the studies, as well as scholars who study technology's impact on behavior and the brain, say the studies are significant because of the vantage points of teachers, who spend hours a day observing students.

The timing of the studies, from two well-regarded research organizations, appears to be coincidental.

One was conducted by the Pew Internet Project, a division of the [Pew Research Center](#) that focuses on technology-related research. The other comes from Common Sense Media, a nonprofit organization in San Francisco that advises parents on media use by children. It was conducted by [Vicky Rideout](#), a researcher who has previously shown that media use among children and teenagers ages 8 to 18 has grown so fast that they on average spend twice as much time with screens each year as they spend in school.

Hope Molina-Porter, an English teacher in Fullerton, Calif., worries that technology is deeply altering how students learn. Credit Monica Almeida/The New York Times

Teachers who were not involved in the surveys echoed their findings in interviews, saying they felt they had to work harder to capture and hold students' attention.

"I'm an entertainer. I have to do a song and dance to capture their attention," said Hope Molina-Porter, 37, an English teacher at Troy High School in Fullerton, Calif., who has taught for 14 years. She teaches accelerated students, but has noted a marked decline in the depth and analysis of their written work.

She said she did not want to shrink from the challenge of engaging them, nor did other teachers interviewed, but she also worried that technology was causing a deeper shift in how students learned. She also wondered if teachers were adding to the problem by adjusting their lessons to accommodate shorter attention spans.

“Are we contributing to this?” Ms. Molina-Porter said. “What’s going to happen when they don’t have constant entertainment?”

Scholars who study the role of media in society say no long-term studies have been done that adequately show how and if student attention span has changed because of the use of digital technology. But there is mounting indirect evidence that constant use of technology can affect behavior, particularly in developing brains, because of heavy stimulation and rapid shifts in attention.

Kristen Purcell, the associate director for research at Pew, acknowledged that the findings could be viewed from another perspective: that the education system must adjust to better accommodate the way students learn, a point that some teachers brought up in focus groups themselves.

“What we’re labeling as ‘distraction,’ some see as a failure of adults to see how these kids process information,” Ms. Purcell said. “They’re not saying distraction is good but that the label of ‘distraction’ is a judgment of this generation.”

The surveys also found that many teachers said technology could be a useful educational tool. In the Pew survey, which was done in conjunction with the College Board and the National Writing Project, roughly 75 percent of 2,462 teachers surveyed said that the Internet and search engines had a “mostly positive” impact on student research skills. And they said such tools had made students more self-sufficient researchers.

But nearly 90 percent said that digital technologies were creating “an easily distracted generation with short attention spans.”

Similarly, of the 685 teachers surveyed in the Common Sense project, 71 percent said they thought technology was hurting attention span “somewhat” or “a lot.” About 60 percent said it hindered students’ ability to write and communicate face to face, and almost half said it hurt critical thinking and their ability to do homework.

There was little difference in how younger and older teachers perceived the impact of technology.

“Boy, is this a clarion call for a healthy and balanced media diet,” said Jim Steyer, the chief executive of Common Sense Media. He added, “What you have to understand as a parent is that what happens in the home with media consumption can affect academic achievement.”

In interviews, teachers described what might be called a “Wikipedia problem,” in which students have grown so accustomed to getting quick answers with a few keystrokes that they are more likely to give up when an easy answer eludes them. The Pew research found that 76 percent of teachers believed students had been conditioned by the Internet to find quick answers.

“They need skills that are different than ‘Spit, spit, there’s the answer,’ ” said Lisa Baldwin, 48, a high school teacher in Great Barrington, Mass., who said students’ ability to focus and fight through academic challenges was suffering an “exponential decline.” She said she saw the decline most sharply in students whose parents allowed unfettered access to television, phones, iPads and video games.

For her part, Ms. Baldwin said she refused to lower her expectations or shift her teaching style to be more entertaining. But she does spend much more time in individual tutoring sessions, she added, coaching students on how to work through challenging assignments.

Other teachers said technology was as much a solution as a problem. Dave Mendell, 44, a fourth-grade teacher in Wallingford, Pa., said that educational video games and digital presentations were excellent ways to engage students on their terms. Teachers also said they were using more dynamic and flexible teaching styles.

“I’m tap dancing all over the place,” Mr. Mendell said. “The more I stand in front of class, the easier it is to lose them.”

He added that it was tougher to engage students, but that once they were engaged, they were just as able to solve problems and be creative as they had been in the past. He would prefer, he added, for students to use less entertainment media at home, but he did not believe it represented an insurmountable challenge for teaching them at school.

While the Pew research explored how technology has affected attention span, it also looked at how the Internet has changed student research habits. By contrast, the Common Sense survey focused largely on how teachers saw the impact of entertainment media on a range of classroom skills.

The surveys include some findings that appear contradictory. In the Common Sense report, for instance, some teachers said that even as they saw attention spans wane, students were improving in subjects like math, science and reading.

But researchers said the conflicting views could be the result of subjectivity and bias. For example, teachers may perceive themselves facing both a more difficult challenge but also believe that they are overcoming the challenge through effective teaching.

Pew said its research gave a “complex and at times contradictory” picture of teachers’ view of technology’s impact.

Dr. Dimitri Christakis, who studies the impact of technology on the brain and is the director of the Center for Child Health, Behavior and Development at Seattle Children’s Hospital, emphasized that teachers’ views were subjective but nevertheless could be accurate in sensing dwindling attention spans among students.

His own research shows what happens to attention and focus in mice when they undergo the equivalent of heavy digital stimulation. Students saturated by entertainment media, he said, were experiencing a “supernatural” stimulation that teachers might have to keep up with or simulate.

The heavy technology use, Dr. Christakis said, “makes reality by comparison uninteresting.”

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